

REMARKS

Claim 2 is pending in the application, claim 1 being canceled and claim 2 being newly added herein.

Specification

The specification stands objected to on account of a number of informalities.

On page 1, second paragraph, the phrase “and be left there” is considered awkward. Also, the clause “it is necessary to stop an operation of the machine and clean the mask frequently” is purportedly awkwardly written.

In response to this objection, the second paragraph on page 1 has been amended to change the phrase “and be left there” to “and remain there” and to change the objectionable clause to read “it is necessary to stop the machine frequently to clean the screen mask.”

On page 1, third paragraph, the clause “and the cleaning work is a manual work” is awkwardly written.

In response to this objection, the third paragraph on page 1 has been amended to read: “Further, it is necessary to dismount the screen mask each time for this cleaning. Since cleaning is a manual process, too much man-power and time are required.”

On page 2, first paragraph, “... and wiping up without strongly rubbing” is awkwardly written.

In response to this objection, the first paragraph on page 2 of the specification has been amended to read: “by lightly applying the printing agent to the screen mask and subsequently gently wiping the printing agent from the screen mask.

Also, in the third paragraph on page 2, the phrase “the whole of the problems” is awkwardly written.

In response to this objection, the third paragraph on page 2 of the specification has been amended to change the phrase “the whole of the problems” to “all of the problems.”

In the fifth paragraph on page 2, the phrase “in a state of setting” is awkward according to the Examiner.

In response to this objection, the fifth paragraph on page 2 of the specification (bridging pages 2 and 3) has been amended to recite “an adhesive tape which is brought into contact with a lower face of a screen mask with an adhesive surface of the tape facing upward.”

On page 3, first full paragraph, the term “clearing unit” should read “cleaning unit.”

This change has been made.

In the “Brief Description of the Drawings” section for Figures 2 and 3, the phrase “showing enlargedly” is considered awkward.

In response to this objection, the brief descriptions of Figures 2 and 3 have been amended to change the word “enlargedly” to the phrase “on a larger scale” set off by commas.

On page 4, the term “enlargedly” is awkward.

In response to this objection, the seventh paragraph (0022) on page 4 of the specification has been amended to delete the term “enlargedly” and to insert the phrase “on a larger scale” in two places.

On page 6, third paragraph, the word “till” should be “until.”

This change has been made. An identical change has been made in the fourth full paragraph on page 3 of the specification.

On page 7, first paragraph, the phrase “may be finished only one time” is awkwardly written.

In response to this objection, the paragraph bridging pages 6 and 7 of the specification has been amended to instead recite “may be carried out only one time.”

In the second paragraph on page 7, the phrase “having the low viscosity” is awkwardly written. Also in the second paragraph, the phrase “the whole of the problems” is awkward.

In response to this objection, the second paragraph on page 7 has been amended to instead recite “all of the problems.”

Claim Objections

Claim 1 was objected to on account of a number of informalities.

Claim 1 has been canceled replaced herein with new claim 2. Claim 2 has been drafted in part to obviate the informalities noted by the Examiner.

Claims Rejections - 35 U.S.C. § 103

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,036,787 to Bennett et al.

In response to the rejection of claim 1 under 35 U.S.C. § 103(a), applicant has canceled claim 1 and inserted new claim 2. Applicant respectfully maintains that claim 2 distinguishes the invention over the prior art and particularly over the art relied on by the Examiner in rejecting claim 1 under 35 U.S.C. § 103(a).

New claim 2 is directed to a cleaning apparatus for a screen mask in a screen printing machine using a paste-like printing agent having a low viscosity wherein the printing agent adhered to an underside of the screen mask is removed by a cleaning unit. According to claim 2, the cleaning unit comprises (a) an adhesive tape having an adhesive surface facing upward and brought into contact with the underside of the screen mask, (b) an adhesive tape take-up member driven by a rotation driving means for taking up the adhesive tape at a given speed, (c) an adhesive tape supply member for holding the adhesive tape in rolled form and delivering the adhesive tape to the take-up member, and (d) an adhesive tape pressing table arranged between the take-up member and the supply member for pressing the adhesive tape to the underside of the screen mask while the tape slides on the table. A driving mechanism causes the cleaning unit to be moved upward at a cleaning starting position, to be moved horizontally at a given speed from the starting position and to a cleaning completing position, to be moved downward at the cleaning completing position, and to be moved horizontally from the completing position to the starting position against. The take-up member, as driven by the rotation driving means, takes up the adhesive tape in a direction opposite to a direction of the horizontal movement of the cleaning unit from the starting position to the completing position at the speed of movement of the cleaning unit.

A cleaning apparatus pursuant to claim 2 has the following features:

(A) The cleaning unit is adapted to remove a printing agent adhered to the underside of a screen mask in a screen printing machine where the printing agent is a paste-like substance having a low viscosity.

(B) The cleaning unit utilizes or incorporates an adhesive tape for

effectuating the removal of the printing agent from the underside of the screen mask.

(C) The adhesive tape does not wipe the underside of the screen mask to remove the printing agent but instead contacts or touches the underside in a process akin to a rolling action. More specifically, the movement of the cleaning unit as a whole together with the movement of the tape relative to the cleaning unit results in a cancellation of any horizontal wiping motion of the tape relative to the screen mask at the point of contact of the tape with the underside of the screen mask. The result is that the adhesive tape neither wipes the underside of the screen mask nor pushes the printing agent back into the screen holes.

The Bennett reference neither discloses nor suggests a cleaning apparatus as set forth in claim 2.

(A) Bennett is silent as to whether the stencil cleaning apparatus of that reference can be adapted to a screen printing machine that uses a paste-like printing agent having a low viscosity.

(B) Bennett neither teaches nor suggests the use of an adhesive tape. The cleaning sheet (1) of Bennett comprises a fabric material through which a vacuum is applied via an adapter (20).

(C) Pursuant to the teachings of Bennett, a wiping apparatus (10) including the fabric sheet (1) is moved in a horizontal direction with the fabric sheet is in contact with a stencil (14). The fabric sheet is stationary with respect to the other portions of the wiping apparatus during this horizontal motion. The fabric sheet is wound onto a take-up spool

or roll (21) only after the wiping apparatus (10) returns to its original position. Thus, the fabric sheet wipes the lower surface of the stencil, and necessarily pushes printing agent back into the holes in the stencil.

According, Bennett neither discloses nor suggests a take-up member driven by rotation driving means so as to take up an adhesive tape in a direction opposite to a direction of horizontal movement of a cleaning unit from a starting position to a completing position, at the speed of movement of the cleaning unit.

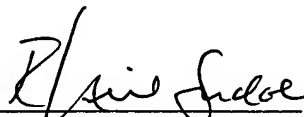
Conclusion

For the foregoing reasons, claim 2 is deemed to be in condition for allowance. An early Notice to that effect is earnestly solicited.

Should the Examiner believe that direct contact with applicant's attorney would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the number below.

Respectfully submitted,

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